3. Was the Court of Appeals for the First Circuit correct in ignoring the admissions against interest made by or on behalf of Photon, and, in so doing, did the Court correctly apply the rule of law set forth in *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Corporation,* 340 U.S. 147, in its holding that the claims of the Tansel patent 2,896,523 are invalid because calling for a combination of elements?

Constitutional Provisions and Statutes Involved

Question 1 requires only the construction of Rule 19 of this Court. Questions 2 and 3 involve only the Constitutional standard of invention necessary for patentability. No particular patent statute is involved, although the patent at bar was, of course, granted under Title 35 U.S. Code, Sections 100-103. The Constitutional provision involved is Article I, Section 8, which states:

> "The Congress shall have Power . . . . To promote the Progress of Science and useful Arts, by securing for limited times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries; . . . ."

Statement of Facts

Petitioner, Cecil L. Tansel, is a teacher of printing at Central High School in Oklahoma City, Okla. He conceived of the invention here involved in December 1943, and then started building a working model.

Tansel filed an application for a patent on the invention on July 11, 1945 (Serial No. 604,474, R. 704-738). This application was prepared by Tansel, himself, and was informal. The Examiner in the Patent Office advised

Tansel to employ a patent attorney (R. 739), and he did so. A "continuation-in-part" application (Serial No. 753,-273 was then filed June 7, 1947, which ultimately matured into Tansel patent 2,725,803 (R. 605).

The Patent Office required "division" and, in compliance, Application Serial No. 56,880, was filed October 27, 1948 with the same specification and drawings as Serial No. 753,273, but with different claims. This ultimately issued as patent No. 2,896,523 on July 28, 1959 (R. 577) and is the patent as to which review is here sought.

During the prosecution of the Application for the Tansel patent No. 2,896,523 it became involved in interference with an application of Higonnet and Moyroud Serial No. 610,336. Higonnet et al. were claiming the same invention. The Higonnet et al. application was being prosecuted by Lithomat Corp. and Graphic Arts Research Foundation, the predecessors of Photon, Inc., and was handled by Photon's present Counsel. The interference litigation went to the Court of Customs & Patent Appeals, where priority of invention was awarded to Tansel (215 F.2d 457 and Appendix, p. A-6).

Following that decision, the Higonnet et al. application which was involved in the interference was abandoned. No petition was filed asking this Court to review under the provisions of Title 28 U.S. Code, Section 1256.

Claims 8 and 9 (R. 600) of Tansel patent 2,896,523 were the counts of the interference. These claims were drawn by Counsel for Photon to define the fundamental novelty of what he then thought was the invention of Higonnet et al. In holding these particular claims invalid, for lack of invention, the decision of the Court of Appeals for the First Circuit is in direct conflict with the decision of the Court of Customs & Patent Appeals which held that these two claims were directed to an invention

"regarded as a fundamental advance in the printing art." (215 F.2d 458 and Appendix, page A-6).

After again going to the Court of Customs & Patent Appeals, this time *ex parte,* to establish certain dates of invention (253 F.2d 241), Tansel patent No. 2,896,523 finally issued on July 28, 1959. It was then asserted against Photon, Inc., the basis for Federal jurisdiction being Title 28 U.S. Code, Sections 1338 and 1400(b).

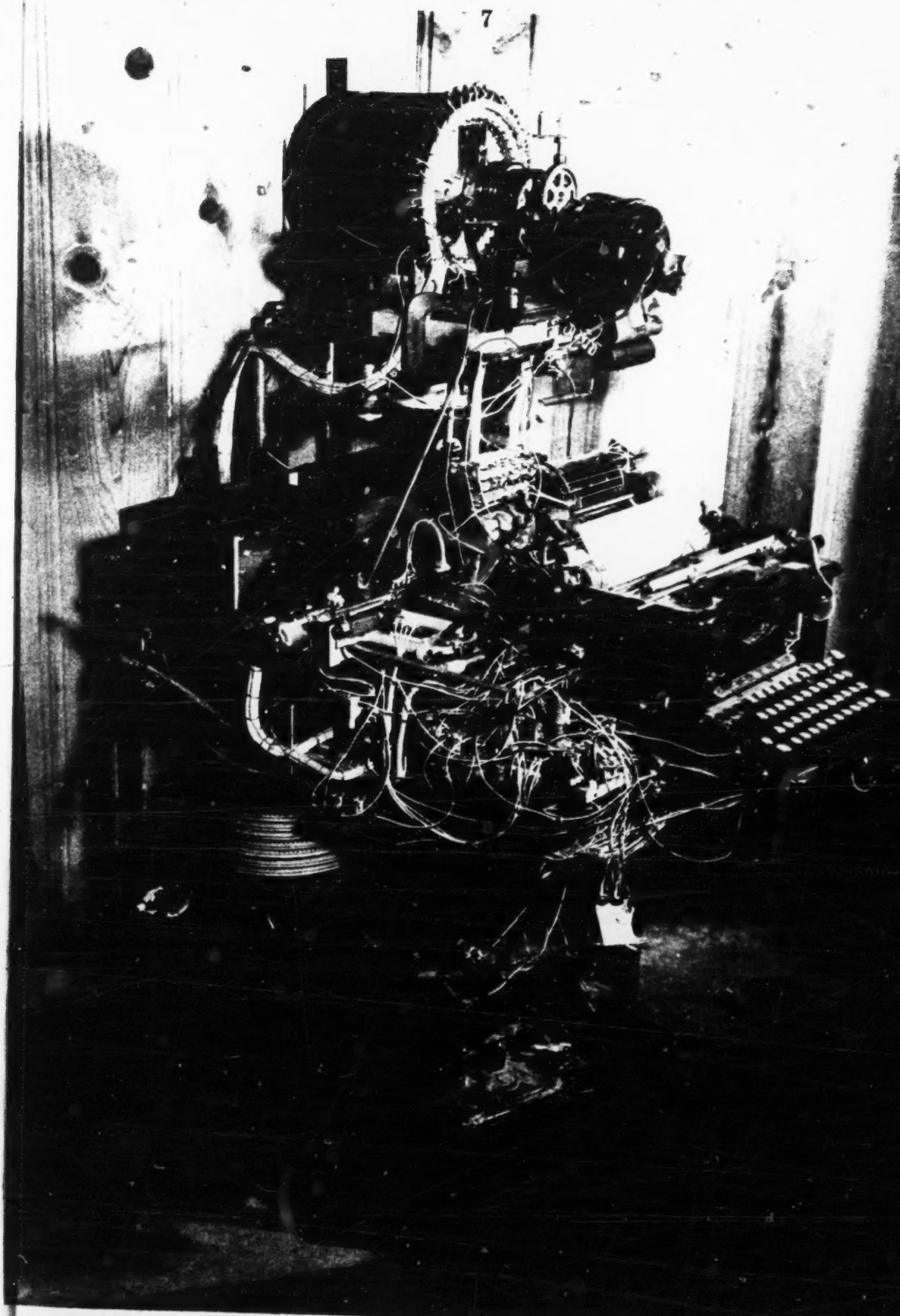
Harris-Intertype Corp. first brought suit in New York, but the action was transferred to the District of Massachusetts where a suit for declaratory judgment had been brought by Photon, Inc. against Harris-Intertype Corp. See *Harris-Intertype Corp.* v. *Photon, Inc.,* 185 F. Supp. 525.

The invention is a very complicated machine which enables a printed page to be made by the use of flash photography instead of the use of metal type as in a Linotype machine. A photograph, PX-21, R. 657, of the machine Tansel built in 1946 is here reproduced.

To be any good, the machine must control the time of the flash of light very precisely. One way Tansel proposed for controlling the timing was the use of mechanical contact points like those used in automobile ignition systems and this is what is shown in the photograph. Another way Tansel proposed was an arrangement using a photocell controlled by a light beam passing through slits in a disk. See Tansel application Serial No. 604,474, filed July 11, 1945, R. 704-738, particularly R. 715.

The position of Photon in the District Court was that a *photocell and slit arrangement* was necessary for precise timing, and that Tansel had not invented this, or, if he had, he had abandoned rights to it.

Far from contending that no invention was involved if the combination incorporated the photocell-slit control, Counsel for Photon admitted, in open court, that the use of the photo-



slit arrangement in this combination "solved the problem" and its use "developed something that was a significant advance in the art."

The statement of Counsel for Photon to the District Court included the following:

> "Now the history is that the defendant here, with the great help of Messrs. Higonnet and Moyroud *have really done something in this field of flash photocomposition.*[2] (R. 269).
>
> • • •
>
> "They (Counsel was contending here that Higonnet et al., not Tansel, made the invention) then developed this *photocell and slit arrangement* on which some evidence has been presented in the case. *They solved the problem of the flash timing. They then were able to get good copy, instead of ragged copy.* (R. 270).
>
> • • •
>
> "One more brief point. The plaintiff has repeatedly mentioned that two of the claims which are in the Tansel patents were framed by me as attorney for Graphic Arts Research Foundation in an amendment which was filed in the Patent Office in 1949. That is true. The plaintiff appears to contend that the defendant has changed its position because the argument was made before the Patent Office that the claims then submitted were patentable; whereas, they now, the defendant now urges that there is no invention in the subject matter of the Tansel patents.
>
> "If there was a change in position, it is perhaps no more than frequently occurs in any of these cases where obviously our views are subject to some modification as time goes on and we see new developments

[2] Emphasis throughout this petition is ours.

in—that is, we see what developments have occurred in the prior art and things of that kind.

"But I want to assert—and I think we shall be able to establish—that there was no change of position. The defendant and I myself, I believe, have been consistent throughout *that when those claims were originally drawn, they were applied to a disclosure which had in it a system by which precise control could be attained and, as a matter of fact, the necessity for precise control had by then been well-established and it was on that basis that the arguments were presented to the Patent Office that Higonnet and Moyroud had developed something that was a significant advance in the art.*

"When the Patent Office in declaring the interference applied to his claims, to the Tansel disclosure which we then recognized was incapable of the precision that is required in this art, it is clearly obvious that the claims, as applied, if they were applicable to the Tansel disclosure—or at least obvious to us—if they were construable to be applicable to the Tansel disclosure would not be patentable because his disclosure did not contain the features necessary for any satisfactory operation. It was on that basis that we brought the motion to dissolve. The Patent Office considers in those cases only the words of the claim and held that the claims were patentable.

"So I say—and I believe the evidence will clearly establish—that our position has been consistent and it is indeed consistent with the discussions we had with Tansel's attorney back in 1949. The correspondence that has already been put in evidence will show that Tansel was advised through his attorney that the only thing considered to be of any value *was the arrangement which Tansel had early described;*

namely, the rudimentary form of photo cell and slit arrangement which he had been unable to get to operate and which he then abandoned and in fact abandoned the applications that it would then have been impossible to get any specific patent protection on it.

"And that has been the defendant's consistent position throughout—that until you had something that would make quality comparable to what would be obtained in the lead machines, you had nothing at all. And it does not satisfy the situation to say that you can build a prototype and later design it to use the accurate structure.

"Higonnet and Moyroud when they discovered what was wrong immediately went out to fix the system so that it would operate. Tansel did nothing further but simply tried to sell his patents, which he succeeded in doing, to the plaintiff. The plaintiff then adopted a system similar to what is used by the defendant here; namely, the *photo cell and slit arrangement which appears in all of the devices that have been under development by the plaintiff from 1949 to the present time.*" (R. 275-277).

The District Court held that the photocell and slit precise control was necessary for commercial success of the machine. The decision states:

"Experts called by both parties agreed that for commercially acceptable accuracy in spacing characters in a line of printing, the machine must be capable of correctly spacing letters within a tolerance of 2/1000ths of an inch. W. R. Spiller, Vice-President in charge of Research and Engineering at Harris, conceded that *accuracy of this magnitude was unob-*

tainable with mechanical contacts of the type shown in the Tansel patent or with any other type of mechanical brushes or contacts. (R. 558).

* * *

". . . . Defendant argues in its trial brief that the pulse-generating system by which the necessary precision is obtained in the Photon machine is a different mode of operation from Tansel's breaker point device; that satisfactory timing was not obtainable through Tansel's *breaker point device* and that the problem of obtaining the necessary degree of precision for commercial purposes *was not solved until Higonnet and Moyroud produced the precise timing device which utilized the slits* in a rotating disc for generating a pulse for each and every character. (R. 564).

* * *

"Dr. Gray (Photon's expert) testified that the pulse theory is a particularized branch of the field of electrical engineering which now permeates a large area in the electronic field . . . . He stated that there are electrical characteristics of *pulse circuits that are necessary and desirable for the control of flash-timing in systems like that contained in the Photon machine.* (R. 565).

"Professor Gray expressed the opinion that the desired steep rise is obtainable through the use of *photo-cell and slit,* coupled with an amplifier, but is *not obtainable with a mechanical break-type contact.*" (R. 566).

While the District Court said (R. 563) that individual elements of the machine were old, the elements listed do not include the photocell slit.

The District Court limited Tansel's disclosure to the "mechanical contacts" for precise control and found that they were not sufficiently accurate.

The Court of Customs & Patent Appeals, on the other hand, found that the Tansel disclosure was not limited to the mechanical contacts for control of the flash. It stated that Tansel also invented the combination where the photocell-slit arrangement was used for precise timing, and that he did not abandon that combination. The CCPA showed why Tansel was entitled to claim that combination.

> "Tansel filed his original application, *No. 604,474, July 11, 1945, the specification and drawings of which disclosed the photo-electric flash control device in issue.* Thereafter, on October 27, 1948, Tansel filed his third application, the one here involved, No. 56,880, which application is in turn a division of his parent application, No. 753,273, filed June 7, 1947, as a continuation-in-part of appellant's original application No. 604,474, hereinbefore described.
>
> "The latter defines the mechanical contact breaker point controls which *Tansel substituted for his original photo-cell control device for controlling the timing of the flash.* This substitution was made by Tansel while constructing his machine, Exhibit 59, and prior to his filing date of July 11, 1945.
>
> "(1) Tansel in filing his second and third applications made known therein his intent not to abandon, and he did not thereby abandon, the invention defined by the terms of his original application. Appellant was therefore entitled under the statute to the filing date of his original application, although, in order to expedite his achievement, *he included contact breaker point controls for his original photo-cell control device.* In re Febrey, 135 F.2d 751, 30 C.C.P.A., Patents, 1099; Harder v. Hayward, 150 F.2d 256, 32 C.C.P.A., Patents, 1051; 35 U.S.C. § 120. See also 69 C.J.S.,

Patents, § 113g, pages 474-475; Walker on Patents, (Deller's Ed.) Vol. II, pages 873-874 . . . ."

—215 F.2d 459 and Appendix, p. A-8 & A-9.

This Court is not asked to *construe* the Tansel patent, however. The question as to the *construction* of the patent is not here presented because the Court of Appeals for the First Circuit has reversed the ruling of the District Court on this point, or at least held that the Tansel claims could be "construed to include the photocell-slit control."

There is thus no conflict between the two Courts of Appeals as to the *construction* of the Tansel patent.

Having construed the Tansel patent the same as the Court of Customs & Patents construed it, the Court of Appeals for the First Circuit then rendered a decision in direct conflict with the Court of Customs & Patent Appeals.

The conflicting statements are as follows:

CA-1

"In any event, we ourselves have carefully studied the record and are satisfied that the Tansel patents, *construed to include the photocell-slit control,* call for nothing more than a combination of elements shown by the prior art cited by the District Court to be old and producing no unexpected result." — 349 F.2d 857 and Appendix, p. A-2.

CCPA

"The invention is regarded as a fundamental advance in the printing art whereby text or copy sub-

> mitted for the purpose of having it printed is composed directly on film by a method of *selective flash photography* of the characters instead of the usual method of molding metal to form lines as in a linotype machine."—215 F.2d 458 and Appendix, p. A-6.

The quoted statement of the Court of Customs & Patent Appeals is not mere dictum. Before deciding whether Tansel had made an invention, the Court had to state what the invention was. Both parties agreed that there had been a fundamental advance. The question before the Court was who made it. Did Tansel invent a machine which met this high standard? This resolved itself, as the case was presented to the Court by Counsel for Photon, into a question of whether Tansel was entitled to claim a machine which had the photocell-slit arrangement.

The CCPA record was offered (R. 208) as Plaintiff's exhibit 54 in the case at bar. One copy of this exhibit is being filed in this Court with this petition. It includes the following remarks of Counsel for Photon to the Patent Office:

> "It will be agreed, we think, that the use of a discharge lamp for projecting the desired character onto the film differs essentially from high speed flash photography for the reasons we have given above. It is also true that this method is *fundamentally different* from the composition methods suggested by Hunter, Uher and others in which a character carrier or matrix is brought to a desired position and then stopped. In such a case any suitable form of shutter, whether mechanical or otherwise, can be operated at its leisure to project the stopped character onto the film. In the present invention the disk or drum is

whirling all the time and the register necessarily controls the contacts to perform the *double function* of selecting the proper character *and flashing it at the exact instant to place it properly on the film.* (PX-54, page 234)

"Claim 54 is limited to the rotary switch 8. Claims 55 to 59 and (sic: are) similar in general scope to claim 53 but include the additional important limitation to the *combination of a precise control which dictates the exact instant of flashing.* (PX-54, page 235)

"Enough has been said, we believe, to show that the construction now claimed is one of *very considerable importance. It distinguishes clearly from the prior art.* It is noteworthy that many efforts at photocomposition have been made in the past, but none has been in the slightest degree successful. *It cannot be said to be obvious to provide a flash lamp as a means of projecting* characters in proper timed relation and in accuracy of spacing even though flash techniques have been used in high speed photography." (PX-54, page 237)

From the very beginning of the development of the Photon commercial machine which embodies the invention here involved, Higonnet, as well as Photon's predecessors, and Photon, itself, together with some very eminent scientists,[3] have extolled the invention to the skies.

---

[3] Dr. Vannevar Bush, one of the scientists who was impressed with the importance of the invention was appointed by President Roosevelt as the Chairman of the National Defense Research Committee for the development of the atomic bomb. He was also President of the Carnegie Institution (R. 183).

Initially, of course, these admissions against interest were made when those making the statements thought that Higonnet et al. were the first inventors, but the statements continued to be published even after the Court of Customs & Patent Appeals had decided, on June 30, 1954, that Tansel was the first inventor.

Some samples of the published statements and admissions are here reproduced. See also PX-5A (R. 627-634) published by Photon in 1958 (R. 122).

OCTOBER 1951

35 CENTS

POPULAR MECHANICS MAGAZINE

WRITTEN SO YOU CAN UNDERSTAND

Dr. Vannevar Bush
top American scientist
and photo-typesetting machine
he helped develop

Lumitype: A New

by Fred Jacobson

PERHAPS NOT SINCE Gutenberg's movable type launched the printing industry of the world, to receive greater impetus later from Ottmar Mergenthaler, has such a radical change in type composition been recorded as was demonstrated last month in Cambridge, Mass., with the introduction of a typewriter-actuated, photographic type-composing machine, the Lumitype.

The machine produces photographic positives or negatives in any family or any size of type with automatic justification to any pre-determined length of line. From either the positive or negative "proofs" the user may make letter press, offset, or gravure plates, either from the type alone or in combination with other elements. This development of the Lithomat Corp. of Cambridge, based on the invention of two French telephone engineers, Rene A. Higonnet and Louis Moyroud, incorporates the principles of high-speed photography, photo-electric cells, similar to those which open doors automatically, and dial telephone selectivity circuits. Its simplicity, speed, versatility, and economy in operation promise to make "present printing methods obsolete," according to Dr. Vannevar Bush, technical advisor and collaborator, who speculated that printing eventually would involve "no metal type at any point," but rather electrostatic transmission of ink.

Fundamentally the machine consists of four distinct units: 1) typewriter, 2) coding mechanism, 3) justification, 4) photoelectric composing unit.

The typewriter

Through the use of a standard typewriter keyboard, complete with platen, the machine operator simultaneously records his work on an ordinary roll of copy paper. This enables him to do his own proofreading immediately and to make corrections in any given line before pushing the lever which initiates the photographic process. He corrects by pushing a button that "rubs out" erroneous letters and brings the carriage into position to type in the correct letter.

Even at its present stage of development, the machine could set 20 lines of newspaper type a minute, according to William W. Garth, Jr., president of Lithomat. This is 2½ times faster than conventional typesetting machines now in use. The speed of the new machine is only limited by the speed of the typist.

Visual control for spacing is also provided. One dial gauges the amount of space set, while another records the space left for justication.

23

Px - 46

Enter, the Lumitype

AUTOMATIC PHOTO-COMPOSER SHOWN

BY SAM A. COUSLEY

INTEREST in photo-composing which has been building up during recent years as the result of the development of several rather miraculous machines and rumors of others in the offing, was given an additional fillip last month when the Lumitype, a new electrically operated photo-composer, was given its first demonstration for the press at the Cambridge, Mass., plant of Lithomat Corp., where the machine, a French invention, is being developed. Another demonstration of the new device, which its proprietors state may be on the market in about two years, provided one of the highlights of the program scheduled for the International Typographic Composition Assn. convention to open in Boston as PRINTING MAGAZINE went to press. (See P. 97.)

The Lumitype combines the simple mechanics of a typewriter keyboard with split second photography and a complicated "electrical brain" memory system such as that which performs miracles in the modern computing machine, to produce automatically justified lines of lettering, arranged in columns of desired width, on film positives or negatives as required.

"MEMORY SYSTEM" USED

On the present model of the machine the characters to be reproduced are carried on a glass disk which bears one complete font of one family of type faces, or a total of 512 characters. When the operator strikes a keyboard letter key the impulse does two things —it records the desired character in the "brain" of the machine, somewhat in the same manner as a numeral is stored away for future handling in the workings of a computing machine, and at the same time the character is visibly impressed upon paper, fed from a roll, so that the operator has before him a typed record for correction purposes.

The machine carries in its "memory system" also (1) the length of the line which must be justified, (2) the remaining unused line units as each line is composed, and (3) the number of word spaces in each line. Correct spacing is thus allotted to each letter as the operator types.

The operator has full control over the line until it has been completed and he is satisfied from reference to his visual copy, that it is free of error. He then depresses a justifying key which sets into motion, simultaneously, the justification system and the glass disk. The disk, spinning at a rate of 6,000 to 10,000 revolutions a second, carries each letter in the recorded line in in its proper sequence to a position before a tiny window where a beam of light photographs the letter upon the strip of film. At the same time the justification system is at work spacing the line properly by dividing the unused line units into the inter-word spacing. While this is going on the operator has composed another line. The machine can be operated, it is said, at a rate of 72 words a minute.

In the commercial model of the machine the glass disk likely will be replaced by a drum which will carry, instead of 512 characters 20 complete fonts or 10,240 characters, it is indicated by Dr. Vannevar Bush, president, Carnegie Institution, Washington, one of the technicians who has been developing the machine. With the installation of enlarging and reducing lenses, Dr. Bush points out, a whole range of type sizes of one family could be used so the number of combinations possible from a single drum on the machine conceivably could reach 3,000,000. This it is indicated would be very practical in the publishing field for which the machine is primarily being developed.

Cut-off rules and column rules, single or double, can be composed on the film and need not be drawn in as has been necessary in many of the other methods adopted as substitute for metal type. Errors which may escape the operator and appear on the film may be corrected by stripping in corrected lines.

Many more refinements are to be made in the machine before it will be ready for the market, it is indicated. When completed the mechanism will be housed in a cabinet approximating the size and appearance of a standard office typewriting desk, and according to the magazine, *Tide*, its cost to users is likely to be between $4,000 and $5,000.

EXPERIMENTS MERGED

The Lumitype, which will be marketed by Lithomat Corp. as the Lithomat Photo-Typesetting Machine, is the result of the merging of separate developments along the same line by two French telephone engineers, Rene A. Higonnet and Louis Moyroud who began their work during the war, and Dr. Bush and his associates at Carnegie Institute who about the same time were proceeding with independent experiments of the same nature.

The French inventors, completed their model in 1946, it is said, and brought their machine to this country to secure mass production. The Lithomat Corp. became interested. When it was discovered that Dr. Bush and Elihu Root III were engaged in a similar development the two projects were merged.

Simultaneous with the demonstration of the new machine and the release of newspaper publicity on it Sept. 15, formation of Graphic Arts Research Foundation, the first project of which will be the further development of the new machine, was announced. The new research and development group is composed of representatives of 139 firms in the trade composition, printing, lithographic, book publishing and manufacturing and newspaper fields, and it is reported it plans to spend $150,000 a year for the next three years. Lithomat, it is said, will be the exclusive licensee for making and marketing the new foundation's developments in the composition field.

Directors of the new group are: Dr. Vannevar Bush, Carnegie Institution of Washington; Dr. Samuel H. Caldwell, director, Center of Analysis, Massachusetts Institute of Technology; Robert B. Choate, publisher, Boston *Herald* and *Traveler*; W. W. Garth, Jr., Lithomat Corp., president; Rene A. Higonnet, Cambridge, Mass.; Howard Knight, president, Livermore & Knight Co., Providence, R. I.; Henry A. Laughlin, president, Houghton Mifflin Co.; Kimball Loring, president, Machine Composition Co., Boston; Roy Moore, president, Brush-Moore Newspapers, Canton, Ohio; Col. E. W. Palmer, president, Kingsport Press, Inc., Kingsport, Tenn.

PX-47

NEW LITHOMAT CORPORATION MACHINE "SETS" READING MATTER PHOTOGRAPHICALLY

● FIRST SHOWING to the trade of Lithomat Corporation's laboratory model, photo type-composing machine was made at the convention of the International Typographic Composition Association in Boston in October. Needless to say, after the sensational news stories which had appeared concerning the machine, coupled with the names of the distinguished persons connected with its development, the composition house men were tremendously interested in the demonstration. Practically the entire registration for the convention took the short trip to Cambridge, where the laboratories are located.

Dr. Vannevar Bush (seated) of the Carnegie Institution of Washington and Dr. Samuel Caldwell of Massachusetts Institute of Technology reveal how the Lithomat automatic typewriter "photographs" lines of type on film, which can be utilized to make a printing plate, all in a matter of five minutes.

What the visitors saw was a completely new method of setting and composing type without the use of metal. The machine (currently it has no name, the former "Lumitype" designation having been discarded) utilizes an electric typewriter keyboard to transmit impulses to a photographic mechanism which records the composed lines on film—either as positives or negatives. The filmed type can go into the production of a litho plate, or can form the basis for the making of a letterpress line-cut.

President William W. Garth of Lithomat Corporation explained that few of the principles involved in the machine are new. It is merely their adaptation to the composing of printing type that is unprecedented. The two basic processes are the sending of the electrical impulses, similar to the manner in which telephone or telegraphic impulses are transmitted, and the scanning or "selection" by the photographic apparatus, by means of stroboscopic light waves, of the character to be set.

In physical form, the machine is in three units. (These units do not include camera mechanism which provides photographed matrices). First, there is the typewriter keyboard, with the ordinary platen carrying a sheet of paper and showing each letter and line as it is struck off. This "proof sheet" does not, of course, show the lines as they appear eventually in type face form. The line is justified, but characters are in typewriter letters, enabling the operator to make corrections of typographic errors before the line is released to the camera. The second unit is a vertical electric panel board containing the apparatus which assembles and transmits the impulses to the camera. The third unit is the photographing mechanism.

In the machine's present form, the type faces to be composed are carried on a circular revolving disc, which is divided in four quadrants, each with 128 characters or symbols. These characters have been photographed on glass "faces" from original copy and placed on the disc. As soon as a line is released by the keyboard operator, the electrical impulses are set in motion. As the disc revolves, a beam of light, actuated by an electrical code, automatically "selects" the character to be set, and the line is photographed at a speed of ten characters a second. Proofs shown at the demonstration were declared by those present to be of fine quality for reproduction, and the audience of typographers found the justification excellent.

The PHOTON

For many of the delegates and visitors who took in the new processes exhibit set up by the Executive Council at the recent Boston convention, it was the first opportunity to see the Photon machine in actual operation. The machine on exhibit was provided by Photon, Inc., of Cambridge, Mass., and was operated by Byron Villaras, an ITU member from Lowell, Mass.

Those who saw the Photon in operation at the convention came away impressed with a least one fact—that Photon, as well as all other photo-typesetting machines, require of the operator a very high degree of printing skill. They also learned that keyboard work on the various types of photo-typesetting machines is but one phase of the total composing room work to be performed in the paste-makeup process.

The product of the Photon, as well as that of other photo-typesetting machines now in use, is a positive or negative of justified lines of type matter on film or sensitized paper.

To set type on film with the Photon, the operator must "send in" to the machine much more information than just the selection of type characters.

For example, the operator must punch a key to select the desired type face, another for the character to be photographed in the proper setwidth (or a variation if necessary); inter-word and inter-character spacing information must also be "fed" into the machine from a keyboard panel located to the right of the main keyboard.

From another panel to the left of the main keyboard, the operator selects the amount of leading to be automatically photographed between the lines, and also presets the desired length of line in any measure up to 42 picas in width.

All of the above typographic information is stored in the electronic memory system of the machine, and when the composed line is "sent in" to the machine, all data is transmitted into an exposed line of type on the film through a revolving glass matrix disc which bears the actual type characters.

In this respect, the Photon machine differs from other phototypesetting units now in use which more closely resemble the hot-metal type machines and use the circulating matrix system. The Photon is an electro-mechanical machine in principle and as such, introduces an entirely new concept of typesetting into the composing room.

Photon Demonstration at Convention Emphasized Machine's Type Versatility

Shown (left) pointing out features of the Photon photo-typesetting machine to President Woodruff Randolph at the new processes exhibit at the 97th ITU convention in Boston, is W. W. Garth jr., president of Photon, Inc., of Cambridge, Mass. Operator seated at the keyboard is Byron Villaras, an ITU member from Lowell, Mass. Mr. Garth says that Photon Inc. expects to produce about 100 machines in 1956, 300 in 1957, 600 in 1958, "and so on until by the end of 1960 we hope there will be about 4000 Photons in use."

New Processes Films Now Available

Delegates and visitors to the 97th ITU convention had an opportunity to see the operation of phototypesetting machines and other photocomposing processes, presented by moving pictures and colored slides.

Some of the films were produced from the actual operation of composing and processing newspaper advertising in the shops of the South Bend, Ind., Tribune, and the Milwaukee, Wis., Journal. Also included in the showing were colored slides of the complete operation of the Photon machine.

Since the convention many requests have been received for the use of these films for showing at local union meetings, typographical conferences, etc.

The Bureau of Education now has available a limited number of these 16 m.m. films and slides. Full information can be obtained by writing to the Bureau of Education, International Typographical Union, P. O. Box 959, Indianapolis 6, Ind.

Argument

As stated in the Petition for Writ of Certiorari in *Calmar, Inc.* v. *Cook Chemical Co.*, No. 37, argued before this Court on October 14th, 1965, "considerable diversity of opinion has developed in the Courts of Appeals as to the standard of patentability during these fourteen years" in which this Court has not considered, on the merits, a case concerning the issue of patent validity.

The greatest diversity of opinion is between the Circuit Courts of Appeals and the Court of Customs & Patent Appeals.

Prior to 1948, this Court did not have jurisdiction to review decisions of the Court of Customs & Patent Appeals. *Pacific Northwest Canning Co.* v. *Skookum Packers Association*, 283 US 858, 75 L. Ed. 1464.

In 1948, Congress authorized this Court to review cases in the Court of Customs & Patent Appeals by writ of certiorari. Title 28 US Code, Section 1256. The Rules of this Court were then revised to add what is now Rule 19, paragraph 2.

Unfortunately, the pronouncements of this Court as to the standard of patentability have had little effect upon the Examiners in the Patent Office. Perhaps even more invalid patents have been granted in recent years than were granted before the decisions of this Court in *Cuno Engineering Corp.* v. *Automatic Devices Corp.*, 314 US 84, 86 L. Ed. 58 and *Great A & P Tea Co.* v. *Supermarket Equip. Corp.*, 340 US 147, 95 L. Ed. 162.

The only direct avenue this Court has for requiring the Patent Office to comply with the Constitutional standard of patentability is through the Court of Customs & Patent Appeals. It is that Court which regulates the Patent Office.

It is imperative, therefore, in order to make our patent system serve its intended purpose, that this Court care-

fully scrutinize a decision of a Circuit Court of Appeals which conflicts with a decision of the Court of Customs & Patent Appeals. The standard of patentability of all Federal Courts must be the same to avoid untold confusion and chaos.

If the CCPA is in error in the case at bar, this Court should say so. What the Circuit Court of Appeals has said will have no effect on the CCPA or on the Patent Office. If the Circuit Court of Appeals is in error, then this Court should say so. Only thus can the diversity of opinion be resolved.

No question of patent law can be more important than this. Yet the case at bar is the first, we believe, where this Court has had an opportunity to resolve conflict between a Circuit Court of Appeals and the CCPA.

Subsequent to the filing of the Petition in the *Calmar* case on December 22, 1964, this Court granted a number of petitions for certiorari in patent cases. However, the decision of the Court of Appeals for the First Circuit in the case at bar was rendered August 30, 1965, before any of the patent cases were heard by this Court and before the diversity of opinion of the lower courts was resolved.

The decision of the Circuit Court of Appeals in the present case is the zenith of those which hold a patent invalid because the claims define a combination of elements.

We respectfully submit that this Court should review cases which hold important patents invalid by application of the rule of the *A & P Tea Co.* case, as well as those which hold patents on gadgets valid in spite of the *A&P Tea Co.*, case, 340 US 147.

Questions 2 and 3 presented by this Petition are questions of law rather than questions of fact. The questions are directed to the standard of patentability.

> "The standard of patentability is a constitutional standard; and the question of validity of the patent is a question of law." — Concurring Opinion, *A & P Tea Co.* case, 340 U.S. 147.

In its decision (349 F.2d 856 and Appendix, p. A-1) the Court of Appeals has ignored the admissions against interest of the Respondent, Photon, Inc., its predecessors, its inventors, its Counsel and its scientists.[4]

This also raises a question of law which should be decided by this Court. In patent litigation, of what effect on validity are such admissions?

We believe these admissions correctly evaluate the invention. The invention is not to be judged by the question of who made it.

We do not question, however, the merits of Higonnet and Moyroud. They appreciated the importance of the basic invention and brought it before the public in such a manner as to attract to it the attention of the scientific world. Thus, the professional experience and attainments of Dr. Vannevar Bush enabled him to see that it was one of the great discoveries in the printing art, with the result that he and other scientists, along with a number of publishers, organized the Graphic Arts Research Foundation to develop it. (R. 509).

---

[4] Statements made in the File Wrapper of Defendant's patent in a suit against him which are inconsistent with the position he takes in the suit have been held to be admissions against interest. *Stedman Mfg. Co.* v. *Redman*, 257 F.2d 867, 871-872 (CA-4); *Bryan* v. *Sid Richardson, Inc.*, 254 F.2d 191, 193 (CA-5).

Statements against interest are "well authenticated utterances" and have the "guaranty of verity." *Gonzales* v. *Landon*, 215 F.2d 955, 957 (CA-9); *Fogarty* v. *United States*, 263 F.2d 201, 206 (CA-5). And see authorities cited in footnote at 263 F.2d 206.

The rule on voluntary admissions against interest applies to admissions by those who are so identified in situation and interest with a party that their declaration may be considered to have been made by himself." *Jones on Evidence*, 4th Ed., Vol. 1, pages 452-453.

In its decision (349 F.2d 856 and Appendix, p. A-1), the Court of Appeals has equated the complicated photocomposing machine of the Tansel patent with the grocery store counter of *Great A & P Tea Co.* v. *Supermarket,* 340 US 147; with a shoe having a toe band of teflon supported by a strip of steel in *United Shoe Machine Corp.* v. *Industrial Shoe Machine Corp.,* 335 F.2d 577, 580 (CA-1); with a folding paper or cardboard box in *Associated Folding Box Co.* v. *Levkoff,* 194 F.2d 252 (CA-1); and with an automobile radiator in *McCord Corp.* v. *Beacon Auto Radiator Co.,* 193 F.2d 985 (CA-1).

We respectfully submit that this Court should rule on whether this is a correct application of the rule of law in the *A&P Tea Co.* case. The Constitution and the many decisions of this Court are intended to encourage individuals like Tansel to make advances which will truly promote the art in which they are working.

The question is whether the ruling in the *A&P Tea Co.* case was intended to apply to a complicated photocomposing machine which scientists working in that art predict will make "present printing methods obsolete," (A statement ascribed to Dr. Vannevar Bush in PX-45, page 21, supra.) or to a machine which "introduces an entirely new concept of typesetting into the composing room." (Quoting from the October, 1955 publication of the International Typographical Union,[6] page 27, supra,) or to "a superior, infinitely more versatile and far more economical method of composition" than the Linotype, (Quoting from the 1958 publication of Photon, itself, under the heading of "A Major Advance in the History of Printing" R. 628).

---

[6] It is common knowledge that the Typographical Union's Training Center at Colorado Springs, Colorado now gives instruction in electronics and photography in recognition of the technical changes in the art of printing.

If the rule of law of the *A&P Tea Co.* case applies to such advances, then this Court should say so, and not leave the decision on such an important question to the lower Courts.

Conclusion

There is a direct conflict between the decision of the Court of Appeals for the First Circuit and that of the Court of Customs & Patent Appeals on the question of whether the patent on the complicated photocomposing machine invented by Tansel calls for nothing more than a combination of old elements and is therefore invalid under the rule of law of the *A&P Tea Co.* case, 340 US 147, or whether it marks a patentable advance in the printing art.

At every turn in the long road over which Tansel has had to travel in endeavoring to establish his rights, Counsel for Photon, Inc., has admitted that a photocomposing machine which had a photocell-slit arrangement for controlling the timing of flashes of light was a major advance in the printing art.

The Court of Customs & Patent Appeals held that Tansel was entitled to a patent on this machine.

The District Court agreed that there had been an advance but limited Tansel's patent to the use of mechanical switches for control of the flash, and held that they were not accurate enough for commercial success.

The Circuit Court of Appeals departed from the real issues before it and held that the machine with the photocell-slit arrangement was not patentable under the rule of law of the *A & P Tea Co.* case, 340 US 147.

The question before this Court is whether the rule of law of the *A & Tea Co.* case applies to such a machine in the face of Photon's admissions that it constitutes an

advance, and in the face of the holding by the CCPA that Tansel had invented it.

Petitioner seeks review to resolve the conflict between the two Courts of Appeals and to insure correct application of this rule of law.

Respectfully submitted,

EARL BABCOCK
200 Hightower Bldg.
Oklahoma City, Okla.
73102
ELLIOTT I. POLLOCK
1200 18th Street N.W.
Washington, D. C.
20036
Attorneys for Petitioner

SERVICE

Service of this Petition has been made upon Respondent by mailing two copies air mail and two copies regular first class mail to Melvin R. Jenney, Esq., 24 School Street, Boston, Mass., 02108, its attorney, this day of December, 1965.

— *Attorney for Petitioner*

Appendix A

United States Court of Appeals
For the First Circuit

No. 6482.

HARRIS-INTERTYPE CORPORATION,

APPELLANT,

v.

PHOTON, INC.,

APPELLEE.

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

Before ALDRICH, *Chief Judge,* BREITENSTEIN,* *Circuit Judge,* and GIGNOUX, *District Judge.*

Lawrence B. Biebel, with whom *Dailey L. Bugg*, *Joseph G. Nauman*, *Marechal, Biebel, French & Bugg* and *Fish, Richardson & Neave* were on brief, for appellant.

Melvin R. Jenney, with whom *Jeremiah Lynch* and *Kenway, Jenney & Hildreth* were on brief, for appellee.

OPINION OF THE COURT.

August 30, 1965.

PER CURIAM. Appellant makes only one substantial attack upon the judgment of the District Court holding Tansel patents No. 2,725,803 and No. 2,896,523 invalid for lack of invention, *Photon, Inc.* v. *Harris-Intertype Corporation,* 235 F. Supp. 921 (1964). It is that the Court failed to recognize that the Tansel patents disclosed the photocell-slit control of the flash, which appellant asserts is the key

*By designation.

to a commercially successful photocomposing machine. We do not so read the District Court's opinion. In any event, we ourselves have carefully studied the record and are satisfied that the Tansel patents, construed to include the photocell-slit control, call for nothing more than a combination of elements shown by the prior art cited by the District Court to be old and producing no unexpected result. Accordingly, we agree with the conclusion of the District Court that both patents are invalid for lack of invention. *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Corp.*, 340 U.S. 147 (1950); *United Shoe Mach. Corp.* v. *Industrial Shoe Mach. Corp.*, 335 F.2d 577, 580 (1st Cir. 1964), *cert. denied*, 379 U.S. 990 (1965); *Associated Folding Box Co.* v. *Levkoff*, 194 F.2d 252 (1st Cir. 1952); *McCord Corp.* v. *Beacon Auto Radiator Co.*, 193 F.2d 985 (1st Cir. 1952).

Judgment will be entered affirming the judgment of the District Court.

JUDGMENT

August 30, 1965.

This cause came on to be heard on appeal from the United States District Court for the District of Massachusetts, and was argued by counsel.

Upon consideration whereof, It is now here ordered, adjudged and decreed as follows: The judgments of the District Court are affirmed.

By the Court:

(s) ROGER A. STINCHFIELD

Clerk

Approved:

(s) ALDRICH, Ch.J.

PETITION FOR REHEARING

Comes now Harris-Intertype, plaintiff appellant, in the above entitled cause and petitions for a rehearing from the per curiam decision of this Court on August 30, 1965 on the following grounds:

I.

The per curiam decision has failed to apply the rule of *Morgan* v. *Daniels,* 153 U.S. 120, to claims 8 and 9 of '523 patent in suit. This portion of the petition is limited to claims 8 and 9 of said patent.

The decision of the United States Court of Customs and Patent Appeals in *Tansel* v. *Higonnet,* 215 Fed. 459, held that these claims were directed to a fundamental advance in the printing art.

This decision of the Court of Customs and Patent Appeals, if not res judicata insofar as Photon, appellee, is concerned, is certainly strongly persuasive. At the time of said decision in the United States Court of Customs and Patent Appeals, Photon's predecessor had the right to petition the Supreme Court for a writ of certiorari by 28 U. S. Code Title 1256. Having failed to do so they are estopped to deny that these claims are directed to a fundamental advance.

The decision of this Court of August 30, 1965 fails to take into account the decision of the Court of Customs and Patent Appeals on these two claims.

II.

We believe there is a serious error in the per curiam opinion which may have affected the entire case; hence this part of the petition is directed to all of the claims in suit in both patents.

In the second sentence of the per curiam opinion begin-

ning "It is that. . . ." we believe that the word "appellant" should read "appellee". Our point throughout has been that appellee from the beginning of the case down to its brief on appeal, has urged that the important concept was the use of the photo-cell and slit combination. Note the Brief for Appellee, page 61, where, referring to the use of the photo-cell and slit for precise timing, by its inventors, the following appears:

> "Here at last, and not until this time, was the answer to the problem of producing typographic quality comparable to that of conventional hot-metal machines".

It is the appellee which has consistently urged the importance of the photocell and slit combination throughout the entire case. We ask therefore that the Court reevaluate its decision in the light of this fact.

It is respectfully requested that this petition be granted and that the per curiam decision of this Court be modified accordingly.

Respectfully submitted,

LAWRENCE B. BIEBEL
Attorney for Appellant
Harris-Intertype Corporation

Of Counsel:
DAILEY L. BUGG
JOSEPH G. NAUMAN
MARECHAL, BIEBEL, FRENCH & BUGG
Winters Bank Building
Dayton, Ohio 45402

CERTIFICATE

I hereby certify that the foregoing petition for rehearing of this cause is presented in good faith and not for delay.

Respectfully submitted,

LAWRENCE B. BIEBEL
Attorney for Appellant
Harris-Intertype Corporation

ORDER OF COURT

September 20, 1965.

It is ordered that the petition for rehearing filed September 13, 1965, be, and the same hereby is, denied.

By the Court:

(s) ROGER A. STINCHFIELD
Clerk

June 30 1954

United States Court of Customs and Patent Appeals

CECIL L. TANSEL,

APPELLANT,

v.

RENE HIGONNET AND LOUIS MOYROUD,

APPELLEES.

Earl Babcock, Duncan, Okla., Lee B. Kemon and Donald E. Lane, Washington, D.C., for appellant.

Melvin R. Jenney and Kenway, Jenney, Witter & Hildreth, Boston, Mass. (Herbert W. Kenway, Boston, Mass., of Counsel), for appellees.

Before O'Connell, Johnson, Worley, Cole and Jackson (retired), Judges.

O'CONNELL, *Judge.*

This is an appeal from the decision of the Board of Patent Interferences of the United States Patent Office awarding priority of invention of the subject matter defined by the two counts in issue to appellees Higonnet and Moyroud, hereinafter referred to as Higonnet.

The invention is regarded as a fundamental advance in the printing art whereby text or copy submitted for the purpose of having it printed is composed direct on film by a method of selective flash photography of the characters instead of the usual method of molding metal to form lines as in a linotype machine.

The complex machinery, wherein a line to be printed is applied to a sheet of photographic material through the

operation of a keyboard, like that of a typewriter, was accurately described by the Primary Examiner:

> The invention is in a phototypograph or photographic composing apparatus comprising a rotatable font, or member carrying characters to be reproduced, a photosensitive sheet holder, an optical system to project images of selected characters from the character holder or font, onto the photosensitive sheet, and a lamp capable of giving an extremely bright flash of extremely short duration which will effectually stop the motion of a character image thrown from the rapidly rotating character carrier onto the stationary photosensitive sheet. The characters to be printed are selected on a keyboard, which operates to code the selected characters upon a register, or temporary reservoir, elements of which in turn will condition a certain electrical circuit, so that when a more precise timing means coacts therewith, the intense flash of light will be produced at precisely the correct instant to reproduce a character at precisely the proper position in a line of characters printed on the photosensitive sheet. Means are also provided to step the photosensitive sheet along, in variable amounts, between exposures, to form complete words and complete lines of typing, with proper spacing between successive letters and words.

A number of applications defining the inventions, more or less specifically, were filed by the respective parties. The pertinent applications of the senior party Higonnet concern three French applications; the first filed in France, July 11, 1944, PV 26,326, showing a system of slits; and the second application No. PV 26,454 filed in that country November 13, 1944, containing amendments whereby "a device giving a flash of light of very great speed and at the

desired instant is substituted for the system of slits." Additional modifications in Higonnet's first French application for a patent, filed July 11, 1944, but not then delivered, were filed in France by Higonnet on June 2, 1945, PV 42,337, from which disclosure the application involved in this interference, No. 610,336, filed in the United States Patent Office August 11, 1945, was derived. The board held, however, that appellees application PV 26,454, filed in France on November 13, 1944, was ineffective on a clear disclosure of the involved invention for the basic reason that the application contained no "reference to parts in the drawing of the earlier patent (PV 26,326) by reference numeral or other specific designation."

Tansel filed his original application, No. 604,474, July 11, 1945, the specification and drawings of which disclosed the photo-electric flash control device in issue. Thereafter on October 27, 1948, Tansel filed his third application, the one here involved, No. 56,880, which application is in turn a division of his parent application, No. 753,273, filed June 7, 1947, as a continuation-in-part of appellant's original application 604,474, hereinbefore described.

The latter defines the mechanical contact breaker point controls which Tansel substituted for his original photocell control device for controlling the timing of the flash. This substitution was made by Tansel while constructing his machine, Exhibit 59, and prior to his filing date of July 11, 1945.

Tansel in filing his second and third applications made known therein his intent not to abandon, and he did not thereby abandon, the invention defined by the terms of his original application. Appellant was therefore entitled under the statute to the filing date of his original application, although, in order to expedite his achievement, he included in his subsequent application, No. 56,880, the mechanical contract breaker point controls for his original

photo-cell control device. *In re Febrey,* 30 C.C.P.A. (Patents) 1099, 135 F. (2d) 751, 57 USPQ 407; *Harder et al.* v. *Hayward,* 32 C.C.P.A. (Patents) 1051, 150 F. (2d) 256, 66 USPQ 51; 35 U.S.C. § 120. See also 69 C.J.S. § 113g, pages 474-475; Walker on Patents (Deller's Ed.) Vol. II, pages 873-874.

It is generally acknowledged that each of the two control devices respectively described by appellant are the equivalent of one another and may be used alternatively to perform substantially an identical function. It is specifically acknowledged by appellee Higonnet in application PV 26,326: "It is clear that in all these arrangements it is possible to use, instead of contacts, photoelectric cells and electronic relays, with which higher speeds of operation are possible." Moreover, as correctly suggested in appellant's brief, citing *William H. Robbins* v. *William A. Steinhart,* 19 C.C.P.A. (Patents) 1069, 57 F. (2d) 378, 13 U.S. Pat. Q. 118; and *Weckerly* v. *Coe,* 71 App. D.C. 378, 110 F. (2d) 699:

> The situation might be somewhat different if Counts 1 and 2 were directed to a precise control device, *per se.* But here both Counts are directed to combinations and both parties admit that percise control devices, *per se,* are old.

Had they been otherwise, appellant may well have had the additional burden of proving their commercial utility by actual reduction to practice, aside from the combination, even though there is no requirement in either of the counts which calls for a photo-electric device or any other form of precise control for the flash. *Triplett* v. *Steinmayer,* 29 C.C.P.A. (Patents) 1243, 129 F. (2d) 869, 54 USPQ 409.

Limitations not included in the counts cannot be subsequently read into them. *Talbot G. Martin* v. *Herbert M. Friendly,* 19 C.C.P.A. (Patents) 1181, 58 F. (2d) 421, 13

U.S. Pat. Q. 201, and questions of inoperativeness relating to any part of the disclosure outside the issues defined by the limitations of the counts are not relevant or material to the issue presented. *Prahl et al.* v. *Redman,* 28 C.C.P.A. (Patents) 937, 941, 943, 117 F. (2d) 1018, 1021-1023, 48 USPQ 568. Moreover, the counts of the inference should be given the broadest interpretation which they will reasonably support. *Cyril P. Deibel* v. *Heise & Schumacher,* 18 C.C.P.A. (Patents) 907, 909, 46 F (2d) 570, 571, 8 U.S. Pat. Q. 162.

The interference was declared to exist by the Patent Office on June 27, 1950. Count I was there derived from the subject matter defined by claim 25 of Tansel's application and claim 53 of Higonnet's; Count 2 from claim 26 of Tansel's application and claim 60 of Higonnet's. Both of said applications, as hereinbefore described, were then copending in the Patent Office. The counts read:

> 1. Photographic composing apparatus comprising a manual keyboard and means for displaying characters of written matter, a register for storing information corresponding to a line of characters and interword spaces of said written matter, a character carrier comprising a rigid continuously rotatable member on which characters of different widths are displayed at uniform distances from the axis of rotation, means for supporting a sensitized sheet having provision for advancing the sheet for line spacing, projection apparatus for projecting characters from said character carrier on to the sensitized sheet, a movable carriage to cause the characters to be projected to successive portions of the sheet, an intermittent discharge tube having a discharge time which is short in comparison with the time of passage of a character past the projection apparatus, a discharge control for the tube, switches controlled by the register for operating the

discharge control circuit to energize the tube to successively project selected characters on the sensitized sheet, and mechanism controlled by the register for variably moving the carriage in accordance with the character and interword widths.

2. Photographic composing apparatus comprising a manual keyboard and means for displaying characters of written matter, a register for storing information corresponding to a line of characters and interword spaces of said written matter, a character carrier comprising a rigid continuously rotatable member on which characters of different widths are displayed at uniform distances from the axis of rotation, means for supporting a sensitized sheet, projection apparatus for projecting characters from said character carrier on to the sensitized sheet, a movable carriage to cause the characters to be projected to successive portions of the sheet, an intermittent discharge tube having a discharge time which is short, in comparison with the time of passage of a character past the projection apparatus, a discharge control circuit for the tube, a rough control device and a precise control device for the circuit, both synchronized with the character carrier, the rough control device determining an interval in which a discharge is to occur and the precise control device determining the precise instant of discharge within said interval, selector switches for the several characters controlled by said register and included in the discharge control circuit, whereby the discharge tube is energized only under the joint action of the register and of the rough and precise control devices to successively project selected characters on the sensitized sheet, and mechanism controlled by the register for variably moving the carriage in accordance with the character and interword widths.

On February 24, 1951, Higonnet moved that the interference be dissolved on the grounds:

I. That Count One is unpatentable over the prior art.

II. That Count Two is met by the prior art if construed broadly enough to read on the Tansel application.

III. That Tansel's disclosure is inadequate to support the counts. In the Brief filed by Higonnet and Moyroud on October 29, 1951, this motion was withdrawn, as to the inoperativeness of Tansel's disclosure.

In such proceedings Higonnet alleged that "Count 2 differs from count 1 only in the inclusion of the rough and precise controls, both synchronized with the character carrier."

Higonnet's motion to dissolve was denied by the examiner with respect to all of the grounds recited therefor. It is deemed pertinent for subsequent reference to reproduce the examiner's decision with respect to points II and III:

> II. Regarding the motion to dissolve as to Count Two being not readable on Tansel's disclosure, it is held that Count Two is patentable, and, construed as broadly as the language will permit, reads upon Tansel's disclosure. This count adds to Count One the "rough" and "precise" control devices for flashing the lamp. Both applicants disclose some apparatus to this effect, but the count is allowable for the same reasons as Count One, as discussed above. The electrical circuit between the register . . . and the pin setting solenoids . . . is the "rough" control of Tansel, and the revolving switch . . . is the "precise" controlling and firing means.

> III. In the Brief filed by Higonnet et al, this motion was withdrawn as to the inoperativeness of Tansel's disclosure. It appears to the Examiner that the Tansel disclosure is sufficiently adequate to enable anyone skilled in this art to construct such a machine, and to make it function as it is said to do. All the elements are of types known from this or other related arts.

Having conceded to Higonnet, the French filing date, June 2, 1945, for conception and constructive reduction to practice, appellant Tansel assumed the burden of proving actual reduction to practice of the invention of the counts, and proving it by a preponderance of evidence. *Pines* v. *McAllister*, 38 C.C.P.A. (Patents) 981, 983, 188 F. (2d) 388, 89 USPQ 312.

Higonnet conceded that Tansel conceived of the machine shown in the eight pages of his drawings and described in the specification of appellant's original application, No. 604,474, prior to June 2, 1945. Tansel's diligence from 1943 to January of 1946 was acknowledged by the board with respect to his filing dates and construction and operation of a machine, Exhibit 59, completed during that time in accordance with the disclosures of his two applications hereinbefore described. Tansel in support of his position submitted here the machine completed in 1946, Exhibit 59, and a motion picture taken in 1946, Exhibit 58, showing the machine in actual operation.

The board held that Tansel's evidence did not sustain his burden of proof with respect to the successful operation of the photo-electric flash control device shown in his original application No. 604,474, and in so holding, the board relied upon the argument advanced by appellees, who on their part, had taken no testimony, made no tests, nor submitted any evidence. As observed in appellant's brief:

> The charge of inoperativeness is based on the fact that a short time before he filed application Serial No. 604,474, Tansel built a machine like that disclosed therein, and in the course of such work removed the photo-electric arrangement and submitted an equivalent flash control device (consisting of the mechanical breaker point controls hereinbefore described).

The substitution by Tansel of the breaker point controls by way of modifying the means by which the desired result was ultimately attained, did not of itself establish the inoperativeness of the photo-electric arrangement previously tested by appellant. On the contrary, Tansel's evidence with respect to his test of that device established that while he and Harder, the electrician whom Tansel had hired to help build the machine, had admittedly encountered difficulty in arriving at proper operation of the precise photocell selector, they were satisfied from its performance in the tests that the device could have been eventually and successfully operated not only by themselves but also by any person skilled in the art; and that the breaker point controls were given the preference by appellant because, as Tansel testified, "We thought we could proceed faster with the breaker point mechanism."

In any event, the burden was upon Higonnet to establish by a proper showing the inoperativeness of appellant's photo-electric device for controlling the timing of the flash precisely. *Field* v. *Knowles,* 37 C.C. P.A. (Patents) 1211, 183 F. (2d) 593, 600, 601, 86 USPQ 373. In that case this court unanimously held, as a matter of law, that there "is a different basis for evaluating the standard of operativeness required for a patent application disclosure to be considered operative, and the standard of operativeness required to establish that the disclosure of the application is actually reduced to practice:"

> We agree with the board that the alleged inoperativeness of the senior party's disclosure here must be evaluated on a basis different from conception and reduction to practice. * * * A senior party might be unable to prove conception and actual reduction to practice due to his failure prior to his filing date to bring to an operative state a machine showing practical utility for its intended purpose, without justifying the conclusion that the junior party has carried his burden of proving by a preponderance of the evidence that the disclosure of the senior party's application could not be made to operate successfully under the application of the representative skill in the art.

The standard required for the proof of inoperativeness hereinbefore described is likewise applied where the party relying on that ground as the basis for the award of priority is the junior and not the senior party. On that point as well as others, we fully agree with the views expressed in this case in the dissent written by P. J. Heyman, a member of the Board of Interference Examiners: "Higonnet and Moyroud in contending inoperativeness of Tansel's application disclosure of July 11, 1945 have not carried the burden of their contention where the admission they rely upon is defective in requirements they would have to satisfy in the taking of actual proofs.

"For the requirements necessary to establish inoperativeness of an opponent's application disclosure it is not necessary to cite further than *Field* v. *Knowles,* 37 C.C. P.A. (Patents) 1211, 1950 C.D. 521, 640 O.G. 697, 183 F. 2d 593, 86 U.S.P.Q. 373. In this decision the court with comprehensive citation of earlier cases exhaustively reviewed this phase of patent law. In the extracts below from that decision it should be borne in mind that Field who made the contention of inoperativeness was the junior party whereas in this case Higonnet and Moyroud who make the con-

tention are the senior party. This makes no intrinsic difference for it is self-evident that inoperativeness of an application, not inoperative on its face and thus not criticized by the Patent Office on that ground, is not a self-proving proposition and whoever makes the contention, whether junior or senior, has the burden of proceeding with respect to his contention.

"From the following excerpts from *Field* v. *Knowles* it is apparent that the party contending inoperativeness of his opponent's application disclosure may prevail in his contention if he fulfills certain requirements. If he conducts *inter partes* tests on a reconstruction of his opponent's device he must show that the device cannot be made to operate even with such modifications and alterations short of invention as would occur to and be made by a person skilled in the particular art genuinely interested in making the device operate. What is particularly important to the case at hand is that *Field* v. *Knowles* further makes it clear that if the contending party does not conduct *inter partes* tests but relies upon evidence furnished by his opponent that evidence in equivalent manner must fulfill the same requirement. * * *

"Count 1 reads upon application Ser. No. 604,474 of Tansel, which does not appear inoperative on its face and which was never criticized by the Primary Examiner as being inoperative. If Higonnet and Moyroud have not carried their burden of showing that the July 11, 1945 application disclosure of Tansel is inoperative then the filing and prosecution of that application which was copending with Tansel parent application Serl. No. 753,273 demonstrates at least reasonable diligence for Tansel as to count 1 in the critical period. Tansel was the first to conceive the invention but the last to reduce it to practice, having demonstrated reasonable diligence in the critical period would be entitled to prevail as to count 1."

The capacity to perform in the manner intended for the machine in issue, though only in a crude way, is sufficient to discharge the inventor's burden of proof for actual reduction to practice. *Hildreth* v. *Mastoras,* 257 U.S. 27, 34; *Frank D. Williams* v. *Max Handschiegl,* 18 C.C.P.A. (Patents) 1176, 48 F. (2d) 395, 9 U.S. Pat. Q. 186.

As hereinbefore described, count 2 differs from count 1 only in the inclusion of the rough and precise controls, both synchronized with the character arrier. The photo-cell arrangement defined by count 1 gave Tansel and Harder considerable difficulty in arriving at a satisfactory operation mainly due to a described contact bounce. Harder testified: "This contact bounce interfered with proper operation of the precise photo-cell selector and while the system could eventually have been worked out, we decided that it would be better to simplify the whole mechanism. We substituted a different character selector, which is that now on Exhibit 59 and which uses mechanical motions of solenoid armatures for a rough control and impingement of rotating contacts against the selected solenoid armatures for precise control."

It is stated in appellant's brief on this particular point, omitting certain numerical references to the record: "So Tansel decided to take the photo-cell precise control off and put on instead breaker point contacts, which 'fired' the circuit by discharge of a condenser through an automobile ignition coil. This is the arrangement shown in Figure 8 of application Serial No. 56,880 and it is what is on the machine, Exhibit 59, which was completed in 1946."

On the same point, Harder further testified:

> Q. Let's turn to Count 2 and I don't think we need repeat all the elements but I'll state to you in general that this count is the same as Count 1 except that it also calls for rough and precise control for the circuit which regulates the flash discharge and I gather from

your testimony here today that this machine Exhibit 59 has both rough and precise control. Is that correct?

A. Yes, that is right. We have described the rough and precise control previously.

Q. And the flash is energized only under the joint action of the register and the rough and precise control devices?

A. Yes.

Q. And now the application. This first one, filed in July, 1945, that is, Serial No. 604,474, does it disclose each of the elements of these counts?

A. Yes, as I've been explaining today, Application 604,474 discloses everything that is in the machine Exhibit 59, or its equivalent, and the addition, the application discloses some parts that never were constructed on the machine, Exhibit 59. As always, there are several possible ways to do a particular job and the precise and rough controls are one of those. * * *

It appears that both counts in issue read upon appellant's disclosures. It further appears that count 1 reads on Tansel's machine, Exhibit 59, and that a direct disagreement exists between the tribunals of the Patent Office as to whether Exhibit 59 has both a rough and precise control for the flash, both synchronized with the character carrier, as defined in count 2.

The Primary Examiner imposed no restriction on the breadth of the interpretation of count 2 and the board in construing the language thereof apparently limited its meaning to the exact construction disclosed by Higonnet instead of construing it as broadly as its language will permit.

The board in rejecting Tansel's contention regarding Exhibit 59, held that he did not establish due diligence in reducing to practice the justifying mechanism thereof by January of 1946. Reasonable diligence as required by the

patent laws relates to the circumstances disclosed by the record in each particular case. *Young* v. *Struble,* 34 App. D. C. 218. There is testimony that Tansel's efforts were continued after January of 1946 and that his justifying apparatus was reduced to practice at least by the summer or early fall of 1946. Furthermore, the counts contain no limitation requiring that appellant complete this reduction to practice as part of his basic system. The linotype machine as first produced by Merganthaler did not include any justifying apparatus and was wanting in "perfect justification," but the court, *Merganthaler Linotype Co.* v. *Press Pub. Co.,* 57 F. 502, 505, 506, held the patent valid:

> This general statement of opinion as to the scope of the patents eliminates from the discussion many of the minor criticisms urged by the defendants. The proposition upon which they appear to lay the greatest stress is that neither patent describes or claims an operative machine because neither is capable of "perfect justification," viz.: making lines of exactly the same length. Their contention proceeds upon the untenable proposition that the machine which produced the "linotype" was valueless because it did not produce an absolutely perfect "linotype." Such a proposition, if sustained, would condemn to obscurity some of the greatest works of human genius. * * * The defect was one that was at once suggested by printers, and the patentee and others immediately set to work to remedy it. This was not a difficult task and was soon accomplished. * * *

The board likewise found that Tansel did not make printing plates from the film used in testing Exhibit 59, which otherwise "operated with something less than commercial printing quality." The authorities set no such standards for measuring the patentability of the invention of the counts. *Hildreth* v. *Mastoras,* 257 U.S. 27, 34;

Leichsenring, Jr. v. *Freeman,* 26 C.C.P.A. (Patents) 1153, 1158, 103 F. (2d) 378, 381, 41 USPQ 478.

For the reasons hereinbefore stated, it is our opinion that the junior party Tansel has met his burden of proof and it follows that the decision of the board, awarding priority of invention of the two counts of the interference to the senior party, Higonnet and Moyroud, must be, and hereby is, reversed.

REVERSED.

Jackson, J., retired, sat for Garrett, C. J.

Jackson, J., and Johnson, J., dissent.

ASSIGNMENT

WHEREAS, HARRIS-INTERTYPE CORPORATION, a corporation of the State of Delaware, with a place of business at 55 Public Square, Cleveland, Cuyahoga County, Ohio, hereinafter called the Assignor, is the owner of the entire right, title and interest in and to United States Letters Patents No. 2,725,803 and No. 2,896,523, and in and to the inventions contained therein, by virtue of an assignment dated January 1, 1958; and

WHEREAS, CECIL L. TANSEL, an individual, residing at 209 East Atkinson Drive, Midwest City, Oklahoma County, Oklahoma, hereinafter called the Assignee, is desirous of acquiring the entire right, title and interest in and to said United States Letters Patents and the inventions therein contained;

NOW, THEREFORE, in consideration of the sum of One Dollar ($1.00) and other valuable considerations, receipt of which is hereby acknowledged, the Assignor hereby sells, assigns and transfers to the Assignee, his heirs, executors, administrators and assigns, the entire right, title and interest in and to said Letters Patents, and the inventions therein contained, and any patent or patents that may be reissued thereon, together with all rights of recovery

for past infringements thereof; said patents to be held and enjoyed by the Assignee, his heirs, executors, administrators and assigns as fully and entirely as the same would have been held and enjoyed by the Assignor had this sale, assignment and transfer not been made.

Assignor, appellant in Civil Appeal No. 6482, presently pending in the United States Court of Appeals for the First Circuit, specifically includes in said sale, assignment and transfer to Assignee, all rights of recovery which it now has or may at any time hereafter have in said chose in action, and Assignor further hereby agrees that Assignee may proceed in his own name and may be substituted in said action as the appellant in place and stead of Assignor.

HARRIS-INTERTYPE CORPORATION
By W. R. SPILLER
Its Senior Vice President-Engineering

ATTESTS
(s) F. C. SZUTER
Secretary

State of Ohio
County of Cuyahoga, ss

Before me, a Notary Public, in and for said county, personally appeared William R. Spiller and F. C. Szuter, known to me to be the persons who, as Senior Vice President-Engineering and Secretary, respectively of Harris-Intertype Corporation, the corporation which executed the foregoing instrument, signed the same, and acknowledged to me that they did so sign said instrument in the name and upon behalf of said corporation as such officers, respectively; that the same is their free act and deed as such officers, respectively, and the free and corporate act and deed of said corporation; that they were duly authorized thereunto by its board of directors; and that the seal affixed to said instrument is the corporate seal of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name, and affixed my official seal, at this 23rd day of September, 1965.

(s) ELMER E. JACOBS
Notary Public